

Claims

What is claimed is:

- 5 1. A method for a client application in a single-threaded environment controlled by a user to request and receive multiple messages asynchronously from a destination application, the method comprising:

the client application sending a first request to a software agent running in a single-threaded environment;

10 the client application sending a second request to a software agent prior to receiving a response to the first request from the software agent;

the client application continuing on in execution in its single-threaded environment prior to receiving responses to the first request or the second request from the software agent;

15 the software agent registering the first request and forwarding the first request to the destination application;

the software agent beginning to cyclically poll the destination application for a first response to the first request;

20 the software agent in between polling cycles registering the second request and forwarding the second request to the destination application;

the software agent beginning to cyclically poll the destination application for a second response to the second request, wherein such polling cycles in sequence with the polling for the first response to the first request;

the destination application generating the first response to the first request and
5 forwarding the first response to the software agent in response to polling from the software agent;

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the software agent receiving the first response from the destination application, ceasing cyclically polling the destination application for the first response, and storing the first response associated with the first request, wherein such actions of receiving, ceasing,
10 and storing occur in between the continuing polling cycles;

the destination application generating the second response to the second request and forwarding the second response to the software agent in response to polling from the software agent;

the software agent receiving the second response from the destination application, ceasing cyclically polling the destination application for the second response, and storing the second response associated with the second request, wherein such actions of receiving, ceasing, and storing occur in between the continuing polling cycles;
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the client application polling the software agent for the first response to the first request and the software agent responding by forwarding the first response from storage
20 to the client application and deleting the first response from storage, wherein the actions of responding by forwarding and deleting occur in between the continuing polling cycles;

the client application polling the software agent for the second response to the second request and the software agent responding by forwarding the second response

from storage to the client application and deleting the response from storage, wherein the actions of responding by forwarding and deleting occur in between the continuing polling cycles.

5 2. The method of claim 1, wherein the action of the client application of sending the second request occurs after the actions of the software agent of registering the first request and forwarding the first request to the destination application and of beginning to cyclically poll the destination application for a first response to the first request.

10 3. The method of claim 1, wherein the action of the client application of sending the second request occurs before the actions of the software agent of registering the first request and forwarding the first request to the destination application and of beginning to cyclically poll the destination application for a first response to the first request.

15 4. The method of claim 1, wherein the action of the destination application of generating the second response to the second request occurs prior to the action of the destination application of generating the first response to the first request; and

20 wherein the action of the software agent of receiving the second response from the destination application, and performing the actions of ceasing polling and storing related to the second response occur prior to the actions of the software agent of receiving the first response from the destination application, and performing the actions of ceasing polling and storing related to the first response.

5. The method of claim 1, wherein the action of the destination application of generating the second response to the second request occurs after the action of the destination application of generating the first response to the first request; and

wherein the action of the software agent of receiving the second response from the destination application, and performing the actions of ceasing polling and storing related to the second response occur after the actions of the software agent of receiving the first response from the destination application, and performing the actions of ceasing polling and storing related to the first response.

6. The method of claim 4, wherein the action of the client application polling the software agent for the second response to the second request and the subsequent forwarding and deleting actions related to the second response to the second request occur prior to the action of the client application polling the software agent for the first response to the first request and the subsequent forwarding and deleting actions related to the first response to the first request.

7. The method of claim 4, wherein the action of the client application polling the software agent for the second response to the second request and the subsequent forwarding and deleting actions related to the second response to the second request occur after the action of the client application polling the software agent for the first response to the first request and the subsequent forwarding and deleting actions related to the first response to the first request.

8. The method of claim 1, wherein the action of the client application polling the software agent for the first response to the first request and the subsequent forwarding and deleting actions related to the first response to the first request occur prior to the actions of the destination application generating the second response to the second request and forwarding the second response to the software agent and prior to subsequent actions of the software agent and of the client application involving the second response.

9. The method of claim 1, wherein the destination application is resident on a server remote to the client application and to the software agent; and

wherein the actions of the software agent of storing the responses received from the destination application stores such responses on a server local to the software agent; and

wherein the actions of the software agent of responding by forwarding the responses from storage to the client application forwards such responses from storage on a server local to the software agent.

10. The method of claim 9, wherein the software agent is resident on a server local to the client application; and

wherein the actions of the software agent of storing the responses received from the destination application stores such responses on a server local to the client application; and

wherein the actions of the software agent of responding by forwarding the responses from storage to the client application forwards such responses from storage on a server local to the client application.

- 5 11. The method of claim 9, wherein the remote destination application comprises a destination server application and a destination client application which manages requests to and responses from the destination server application; and

wherein the actions of forwarding the requests to the destination application comprise forwarding the requests to the destination client application; and

- 10 wherein the actions of the software agent of cyclically polling the destination application comprise cyclically polling the destination client application for the responses to the requests; and

wherein the actions of the destination application forwarding the responses to the software agent in response to polling from the software agent comprise the destination client application forwarding responses to the software agent.

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12. The method of claim 1, further comprising:

the client application, in conjunction with sending a first request to the software agent, sending a command to register a callback associated with such first request;

- 20 the software agent, in conjunction with the actions of receiving the first response from the destination application, ceasing cyclically polling the destination application for the first response, and storing the first response associated with the first request, further

takes the action in response to the callback of notifying the user that the first response has been received.

13. The method of claim 12, wherein the command to register a callback comprises a
5 command resulting in instantiation of a callback object associated with the software agent; and

wherein the action of the software agent of notifying the user comprises the callback object responding to the storage of the first response associated with the first request by notifying the user that the first response has been received.

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14. The method of claim 12, wherein the action of notifying the user that the first response has been received comprises sending a pop-up to the user notifying the user without interrupting the thread of execution of the client application.

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15. The method of claim 12, wherein the action of notifying the user that the first response has been received comprises notifying the client application that the first response has been received and the client application interrupting its thread of execution to notify the user that the first response has been received in response to the notification from the software agent.

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